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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,330	12/05/2001	Israel Quiroz Franco	MPSHAW-06738	9931

7590 05/07/2003

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EXAMINER
ARNOLD JR, JAMES

ART UNIT	PAPER NUMBER
1764	2

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

MK-2

Office Action Summary	Application No.	Applicant(s)	
	10/006,330	FRANCO ET AL.	
	Examiner	Art Unit	
	James Arnold, Jr.	1764	

-- Th MAILING DATE of this communication app ars on the cover sh et with th correspondenc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) *9-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-8, drawn to a process of reducing sulfur with a silica gel, classified in class 208, subclass 245.

II. Claim 9, drawn to the product of a sulfur reduction process, classified in class 208, subclass 16.

III. Claims 10-16, drawn to a catalytic processor, classified in class 422, subclass 129.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made another materially different process such as removal of sulfur using a sorbent composition comprising zinc oxide, a noble metal, and a carrier.

Inventions of Group I and Group III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as sulfur removal without the use of a silica gel.

Inventions of Group II and Group III are related as apparatus and product made. The inventions in this relationship are distinct if either or both of the following can be shown: (1) that the apparatus as claimed is not an obvious apparatus for making the product and the apparatus can be used for making a different product or (2) that the product as claimed can be made by another and materially different apparatus (MPEP § 806.05(g)). In this case the product as claimed can be made by another materially different apparatus such as an apparatus without silica gel substantially filling the interior of the housing.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Virginia S. Medlen on April 24, 2003 a provisional election was made WITH traverse to prosecute the invention of Group I, claims 1-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 9-16 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

Claim 2 is objected to because of the following informalities: In line 3 of claim 2 the units corresponding to 0.14% and 0.16% should be inserted in the claim. Appropriate correction is required.

Claim 7 is objected to because of the following informalities: The "exit temperature and pressure from the sulfur-reduction treatments at plants for production of catalytically processed gasoline" mentioned in lines 2 and 3 of the claim renders ascertainment of the metes and bounds of the claim difficult. Appropriate correction is required.

Claim 6 is objected to because of the following informalities: In line 2 of claim 6, the phrase "may be" renders ascertainment of the metes and bounds of the claim difficult. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation " the sulfur-reduction treatments" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Urban (USPN 3,859,414).

The Urban reference discloses a treatment using silica gel to reduce sulfur in a gas stream. See Column 2, lines 28-37.

The reference does not disclose a treatment to reduce sulfur in catalytically processed and intermediate crude oil distillates. The reference does not disclose a treatment characterized by producing catalytically processed gasoline with a sulfur content of less than between approximately 0.14% and 0.16%. The reference does not disclose a treatment characterized by producing catalytically processed gasoline with a final boiling point between 220 C and 225 C. The reference does not disclose a treatment characterized by employing 28,200 Grade-12 silica gel packed in a vessel or filter open at both ends, through which circulates a flow of catalytically processed gasolines or intermediate crude-oil distillates containing sulfur. The reference does not disclose a treatment characterized by instillation of silica gel-packed filters at the exit from catalytically processed gasoline and intermediate crude-oil production processes, provided for

subsequent reduction of sulfur content. The reference does not disclose a treatment characterized by the fact that there may be multiple filters assembled in series for reduction of sulfur content in catalytically processed gasolines and intermediate crude oil distillates. The reference does not disclose a treatment wherein the filter operates at the exit temperature and pressure from the sulfur-reduction treatments at plants for production of catalytically processed gasoline and distillation of intermediate crude-oil products. The reference does not disclose a treatment characterized by the fact that the filter is used until the output of catalytically processed gasoline from the filter contains 0.15% sulfur by weight, at which time the filter must be changed.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a treatment to reduce sulfur in catalytically processed and intermediate crude oil distillates because the reference states that sulfur removal may be obtained regardless of the source of the gas stream. See Column 2, line 28. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a treatment characterized by producing catalytically processed gasoline with a sulfur content of less than between approximately 0.14% and 0.16% because the reference discloses the use of silica gel as a sulfur remover and it would be appropriate to utilize the gel in a manner effective to reduce sulfur levels to an acceptable level and because the reference discloses sulfur removal of 90 to 99% or more. See Column 10, line 35. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a treatment characterized by producing catalytically processed gasoline with a final boiling point between 220 C and 225 C because the nature of the sulfur removal treatment and the type of gasoline used would affect the final boiling point of the gasoline. It would have been obvious to one having ordinary skill in the art at the

time the invention was made to utilize a treatment characterized by employing 28,200 Grade-12 silica gel packed in a vessel or filter open at both ends, through which circulates a flow of catalytically processed gasolines or intermediate crude-oil distillates containing sulfur because the reference discloses the use of a silica gel for sulfur removal and it would be appropriate to use any silica gel effective for this purpose and because a vessel open at both ends would allow for more efficient gasoline contact with the silica gel by allowing more space for the gasoline to contact the silica gel. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a treatment characterized by instillation of silica gel-packed filters at the exit from catalytically processed gasoline and intermediate crude-oil production processes, provided for subsequent reduction of sulfur content and to utilize a treatment characterized by the fact that there may be multiple filters assembled in series for reduction of sulfur content in catalytically processed gasolines and intermediate crude oil distillates because these arrangements allow for more efficient gasoline contact with the silica gel by allowing more gasoline to be treated before the need to replace the silica gel filter arises and because they ensure that all portions of the gasoline stream are treated before leaving the desulfurization system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a treatment wherein the filter operates at the exit temperature and pressure from the sulfur-reduction treatments at plants for production of catalytically processed gasoline and distillation of intermediate crude-oil products because the maintenance of temperature helps maintain a stable desulfurization system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize a treatment characterized by the fact that the filter is used until the output of catalytically

processed gasoline from the filter contains 0.15% sulfur by weight, at which time the filter must be changed because a filter is only physically capable of holding limited amount of sulfur.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McKee (USPN 1,387,857), Brooke (USPN 3,051,646), McRae et al. (USPN 3,475,122), Carr et al. (USPN 3,630,890), Myers et al. (USPN 3,630,943), Rossini et al. (USPN 6,107,535), and Piccoli et al (USPN 6,118,037). These references disclose desulfurization of gasoline utilizing a silica gel.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Arnold, Jr. whose telephone number is 703-305-5308. The examiner can normally be reached on Monday-Thursday 8:30 AM-6:00 PM; Fridays from 8:30 AM-5:00 PM with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 703-308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

ja
May 5, 2003

Walter D. Griffin
Primary Examiner